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Agricultural Memorandum No 463

Expectancy of Heavy Winter Rainfall - SOUTHWEST ENGLAND

L P Smith

Long-term records of 68 rainfall stations in SW England were examined to determine the probable heaviest falls in 1 year, 2 years, 10 years over 1 and 5 days. (Rainfall in millimeters). Period November to April.

Results

County	No of Stations	Mean Annual Rainfall	Heaviest 1 day falls in 1 year	2 years	10 years	Heaviest 5 day falls in 1 year	2 years	10 years
Gloucester	8	764	22.4	26.1	51.1	44.5	51.1	65.4
Wiltshire	8	839	23.7	28.1	36.6	50.3	59.0	75.3
Dorset	8	919	28.9	34.7	44.4	62.9	72.6	90.4
Somerset	15	871	24.0	27.9	37.6	51.9	60.3	76.3
Hereford	5	772	23.2	27.4	35.4	50.2	59.4	74.4
Cornwall	8	1053	27.3	32.0	42.0	60.1	68.5	83.9
W. Devon	7	1047	30.1	36.4	48.1	68.0	78.3	96.0
E. Devon	9	925	28.3	33.1	42.1	62.0	71.7	87.7

Combining these counties and re-analysing.

Rainfall Range	No of Stations	Mean Annual Rainfall	Heaviest 1 day falls in 1 year	2 years	10 years	Heaviest 5 day falls in 1 year	2 years	10 years
600-700	4	678	20.7	24.0	31.5	40.7	47.5	61.5
700-800	10	751	22.2	26.1	33.8	46.8	54.7	69.2
800-850	15	820	23.8	28.0	37.4	50.0	57.9	73.0
850-900	12	876	26.6	31.5	41.0	57.1	66.5	83.3
900-1000	10	943	26.6	31.1	40.8	59.0	67.9	82.1
1000-1100	6	1034	29.3	35.3	45.3	65.2	75.3	96.2
1100-1200	11	1136	30.6	36.4	47.5	68.9	79.5	97.4

These results can be smoothed for the area as a whole

The county correction can be used for the regional differences:-

Average Annual Rainfall	Heaviest in 1 day			Heaviest in 5 days		
	1 year	2 years	10 years	1 year	2 years	10 years
600	19.3	22.2	29.5	37.3	43.8	56.5
650	20.4	23.6	31.2	40.4	47.3	60.6
700	21.5	25.0	33.0	43.5	50.8	64.7
750	22.6	26.4	34.7	46.6	54.3	68.8
800	23.7	27.8	36.5	49.7	57.8	72.9
850	24.8	29.2	38.2	52.8	61.3	77.0
900	25.9	30.6	40.0	55.9	64.8	81.1
950	27.0	32.0	41.7	59.0	68.3	85.2
1000	28.1	33.4	43.5	62.1	71.8	89.3
County Corrections						
Gloucester	-0.5	-0.7	-0.7	-3.0	-4.2	-5.5
Wiltshire	-0.8	-0.8	-1.3	-1.9	-1.5	-1.8
Dorset	+2.6	+3.6	+3.7	+5.8	+6.5	+6.7
Somerset	-1.2	-1.9	-1.4	-2.2	-2.5	-3.4
Hereford	+0.1	+0.4	-0.1	+2.2	+3.6	+2.8
Cornwall	-1.9	-2.9	-3.3	-5.3	-7.0	-10.7
W. Devon	+1.0	+1.7	+3.0	+3.0	+3.2	+1.8
E. Devon	+1.9	+1.8	+1.2	+5.0	+5.1	+3.5

These corrections are larger than in other regions, but are probably valid.

Any comments or suggestions on this paper should be referred to the author.

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